



Natural Heritage & Endangered Species Program

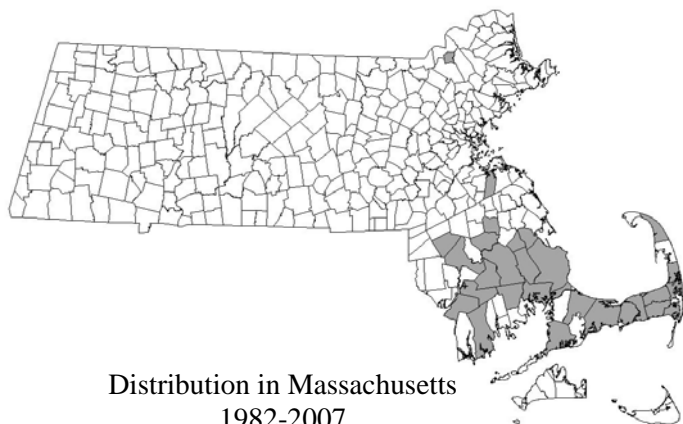
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Description: Plymouth Gentian (*Sabatia kennedyana*) is a globally rare, showy perennial herb of the gentian family (Gentianaceae), with striking pink and yellow flowers and opposite lance-shaped leaves. It inhabits the sandy and peaty shorelines of coastal plain ponds.

Aids to identification: Plymouth Gentian reaches 12 to 28 inches (30–70 cm) in height, with opposite branches bearing narrowly lanceolate leaves. The leaves are 0.8 to 5 inches (2–5 cm) in length, entire, and sessile. The flowers, which form atop long pedicels, are pink with a yellow center bordered by red; they have 9 to 11 petals, each of which is 0.6 to 1.1 inches (1.5–3 cm) in length. Plymouth Gentian blooms between early July and mid-September, depending on when the water level of the site decreases enough to expose adequate shoreline. The fruit is a capsule with two valves.

Similar species: Slender rose-gentian (*Sabatia campanulata*) (Endangered) occurs in similar habitat in Massachusetts, but has only 7 or fewer petals per flower. Rose Coreopsis (*Coreopsis rosea*), another showy flower of coastal plain pondshores, is somewhat similar to Plymouth Gentian due to its radial pink and yellow inflorescence. Rose Coreopsis, however, is a composite (family Asteraceae) with disc and ray flowers and linear, rather than lanceolate leaves.



Distribution in Massachusetts
1982-2007

Based on records in Natural Heritage Database

Plymouth Gentian *Sabatia kennedyana*

State Status: **Special Concern**
Federal Status: None



Crow, G.E. 1982. *New England's Rare, Threatened, and Endangered Plants*. U.S. Department of the Interior, Fish and Wildlife Service, Northeast Region.

Habitat in Massachusetts: Plymouth Gentian grows along the seasonally wet, sandy to peaty soils of low nutrient, acidic coastal plain pondshores. It prefers full sun and does not compete well with shrubs; therefore fluctuating water levels are important for the persistence of this species at a site. Associated species include Golden Hedge-hyssop (*Gratiola aurea*), Pond-shore Rush (*Juncus pelocarpus*), Slender-leaved Goldenrod (*Euthamia tenuifolia*), Toothed Flatsedge (*Cyperus dentatus*), and Rose Coreopsis (*Coreopsis rosea*). Several rare species can be associated with Plymouth Gentian, including Long-beaked Bald-sedge (*Rhynchospora scirpoides*) (Special Concern), Short-beaked Bald-sedge (*Rhynchospora nitens*) (Threatened), Torrey's Beak-sedge (*Rhynchospora torreyana*) (Endangered), Terete Arrowhead (*Sagittaria teres*) (Special Concern), and Wright's Panic-grass (*Dichanthelium wrightianum*) (Special Concern).

Flowering time in Massachusetts

| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form as these donations comprise a significant portion of our operating budget.

Threats: Plymouth Gentian is threatened by any activity that changes the hydrologic regime, water, quality, or soil integrity of the coastal plain pond it inhabits. Region-wide, coastal plain ponds are imperiled due to shoreline development, water table drawdown (from wells), eutrophication (resulting from fertilizers and septic systems), and soil disturbance from heavy recreational use (ORV, horse, and foot traffic; camping; boat-launching; raking and digging).

Range: Plymouth Gentian has a very limited range, consisting of the coastal plain areas of Nova Scotia, Massachusetts, Rhode Island, North Carolina, South Carolina, and Virginia; it is rare in each of these locations except for Virginia (where it has been introduced).

Population status in Massachusetts: Plymouth Gentian is listed under the Massachusetts Endangered Species Act as a species of Special Concern. All listed species are legally protected from killing, collection, possession, or sale, and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. Plymouth Gentian is currently known from Barnstable, Essex, Norfolk, and Plymouth Counties, and is historically known from Nantucket County.

Management recommendations: Management of Plymouth Gentian requires protection of the hydrology, water quality, and soil integrity of its habitat. Like many other coastal plain pondshore plant species, Plymouth Gentian requires pronounced water-level fluctuations, acidic, nutrient-poor water and substrate, and an open, exposed shoreline, free from major soil disturbance. The hydrologic regime is particularly important; coastal plain pondshore species often require low water years for reproduction, but their persistence at a site depends on high water years to keep dense woody vegetation from taking over the shoreline. Protection of Plymouth Gentian habitat may require exclusion of new wells and septic systems, prohibitions on fertilizer use, and restrictions on recreational use of the site. Recreational activities such as swimming, hiking, horseback riding, and ORV use should be diverted from the plant population location by re-routing trails, installing fences, and providing alternative locations for the activities.

Populations should be monitored to identify threats such as over-shading, invasive plant establishment, and soil disturbance. Plymouth Gentian is most likely to be observed in the middle to late summer when water levels have decreased to expose shoreline.

Sites that have encroaching woody vegetation could be carefully thinned after the growing season (November–April).

Habitat sites should be checked for the early stages of exotic plant species invasions. The low-nutrient, acidic shores inhabited by Plymouth Gentian are generally inhospitable for many exotic invasive plants, but invasives could become established at sites that have received heavy soil disturbance or nutrient input. Exotic species that could establish at such sites include Common Reed (*Phragmites australis* ssp. *australis*), Gray Willow (*Salix cinerea*), and Purple Loosestrife (*Lythrum salicaria*). To avoid inadvertent harm to rare plants, all active management of rare plant populations should be planned in consultation with the Massachusetts Natural Heritage and Endangered Species Program.

Updated June 2007